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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/784,171	02/16/2001	Norio Kimura	2001-0163A	1530
513	7590	08/13/2004	EXAMINER	
WENDEROTH, LIND & PONACK, L.L.P.			ROSE, ROBERT A	
2033 K STREET N. W.				
SUITE 800			ART UNIT	
WASHINGTON, DC 20006-1021			PAPER NUMBER	
			3723	

DATE MAILED: 08/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/784,171

Applicant(s)

KIMURA ET AL.

Examiner

Robert Rose

Art Unit

3723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 May 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4,5,7,8,10-15 and 22-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4,5,7,8,10-15 and 22-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 2-3, 6, 9, and 16-21 have been canceled. Claims 22-25 have been added.
2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 4-5, and 7-8, 10-15, and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al(US 5672091) in view of Stephan(Australian No. 245213) and further in view of Birang et al(US 5964643). Takahashi et al discloses an optical endpoint detection device for a cmp machine comprising an optical measuring device located adjacent an outer edge of the polishing pad to detect the surface of an overhanging wafer. Note optical endpoint detection device (3)(4) adjacent polishing table(1) for detecting the state of the wafer(F) held by top ring(2), without removal of the wafer from the table. While the polishing table lacks a notch in it's outer surface to allow light to pass through for observation of the work, such structure is known in the optical detection art as evidenced by Stephan. To provide one or more such notches in the outer periphery of the polishing table in Takahashi et al to locate the optical endpoint detection device as close as possible to the polishing table to save space, while still allowing detection of the state of the workpiece without removal of the workpiece would have been obvious in view of Stephan. With regard to claim 4 the exposure area of the wafer during measuring is deemed to constitute no more than an obvious matter of design choice in the

absence of a showing of criticality in the use of "not more than 40%" exposure. Birang et al disclose a polishing device for polishing wafers comprising a top ring which is oscillated across the pad in a swinging motion, and allows incident light to reflect off of at least a central portion of the wafer. To mount the top ring on a swingable arm which exposes at least a central area of the substrate to the incident light, and to oscillate the wafer during polishing to provide a more even polishing action in Takahashi et al, would have been obvious in view of Birang et al.

4. Applicant's arguments filed May 4, 2004 have been fully considered but they are not persuasive. Takahashi et al hang the wafer over the edge of the pad to expose a portion of it's surface to allow optical measurement of it's surface by reflected light to determine the polishing endpoint. While a notch is not disclosed for this purpose, Stephan teaches such a notch in a rotary polishing tool for optical assessment of the state of the work. To provide one or more such notches in the polishing table of Takahashi et al for this reason would have been obvious in view of Stephan. Applicant's new limitation of the swinging motion of the top ring being such that the light "is incident on at least a central portion of the substrate" is deemed to be suggested by figure 17 of Birang et al, which shows the wafer being oscillated across an aperture(30) in the pad and platen, with at least the central portion of the substrate(14) being exposed to the incident light(34).

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

5. Any inquiry concerning this communication should be directed to Robert Rose at telephone number (703) 308-1360.

rr

August 6, 2004.

A handwritten signature in black ink, appearing to read "Robert A. Rose", is written over a horizontal line.

ROBERT A. ROSE
PRIMARY EXAMINER
ART UNIT 323